



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/517,579	03/02/2000	Kazuya Hiratsuka	0059-1208-0	4777

7590 08/07/2002

Oblon Spivak McClelland Maier & Neustadt PC  
Fourth Floor  
1755 Jefferson Davis Highway  
Arlington, VA 22202

EXAMINER

NGUYEN, HA T

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 08/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/517,579

Applicant(s)

HIRATSUKA ET AL.

Examiner

Ha T. Nguyen

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 2-5,7-9,11-17 and 19-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-5,7-9,11-17 and 19-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Notice to applicant*

1. Applicants' Amendment and Response to the Office Action mailed 11-27-01 has been entered and made of record (Paper No. 11).

### *Response to Amendment*

2. In view of applicants' cancellation of the claims, the rejection of claims 10,18, and 27 under 35 U.S.C. 103 has been rendered moot.

Applicants' arguments with regard to the rejections under 35 U.S.C. 103 have been fully considered, but they are not deemed to be persuasive for at least the following reasons.

Applicants argued that Morimoto et al. (US Patent 4725927, hereinafter "Morimoto") "fails to disclose or suggest a method for producing an electric double layer capacitor 1) having the claimed organic solvent in the organic electrolyte, 2) having the claimed specific surface area of 100 to 3000m<sup>2</sup>/g of the carbonaceous material of the electrodes, and 3) which is maintained at reduced pressure after the voltage is applied as set forth in claims 5, 12, and 20". The examiner disagrees, contrary to applicants' argument, Morimoto discloses substantially the above limitations. Concerning the claimed organic solvent in the organic electrolyte, Morimoto discloses the use of an organic solvent comprising sulfolane solvent, chlorobenzene, and among other things propylene carbonate or butylene carbonate (see col. 2, lines 27-66), the claims require a solvent in one of the three lists "a)", "b)", or "c)", Morimoto discloses a solvent of the list "a)", in addition Morimoto also teaches the use of chlorobenzene in the electrolyte, as shown above. Note that the language of the claims ("contains") does not exclude the use of sulfolane in the solvent in addition to the solvent of the list "a)". Concerning the specific surface area of the carbonaceous material of the electrodes, Morimoto discloses a value of 2000m<sup>2</sup>/g which falls within the claimed range. Note that applicant's arguments are largely directed to what the cited references teach individually. However, it is axiomatic that one cannot show nonobviousness by attacking references individually where the rejection, as here, is based on a combination of references. *In re Young*, 403 F.2d 754, 159 USPQ 725 (CCPA 1968); *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). For example, applicant argues that Morimoto does not disclose the use of a reduced pressure after the voltage is applied as here claimed. However, Wei

et al. (US Patent 6152970 , "Wei") , not Morimoto, is employed in the rejection to show that feature of the claimed process. Therefore the combined teaching of Morimoto and Wei do teach all the limitations of the claims 5, 12, and 20.

Applicants argued that Tsushima (JP 100041199) does not teach the environmental atmosphere where the voltage is applied. Tsushima teaches the application of a voltage before and after the case is sealed, as stated in the rejection, because of the large effect of moisture in the performance of the capacitor, the use of dry atmosphere is obvious to ensure better control of the environment, and repeatability of production because fluctuation in humidity would be eliminated.

Applicants argued that Grigortchak et al. (US Patent 5351164) does not pertain to a double layer capacitor having organic electrolyte as claimed. The examiner disagrees, Grigortchak teaches the invention is applicable for both organic and aqueous electrolyte (see col. 2, lines 7-12).

Applicants are referred to the modified ground of rejection given below.

### ***Claim Rejections - 35 USC 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 2812

4. Claims 2, 4, 5, 7, 9, 11, 20-21, 23, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto et al., U. S. Patent 4725927 (hereinafter Morimoto) in view of Wei et al., US Patent 6152970 (hereinafter Wei).

Morimoto discloses a method for producing an electric double layer capacitor, comprising the steps of: impregnating an element comprising positive and negative electrodes facing each other with a separator interposed between, with an organic electrolyte capable of forming an electric double layer on the surface of the electrodes to store electric charge thereon (See col. 1, line 65-col. 2, line 49, col. 3, lines 37-49, and col. 5, lines 25-68); and then applying a voltage to the element (see col. 4, lines 31-39), wherein said positive and negative electrodes are made of electrodes containing a carbonaceous material having a specific surface area of  $2000\text{m}^2/\text{g}$  (See col. 3, lines 37-46), and said organic electrolyte contains benzene or its chlorine derivative having at least one hydrogen atom of benzene substituted by a chlorine atom (See col. 2, lines 49-66); wherein a voltage of 2.8V is applied to the element at a temperature of 85°C (see col. 4, lines 40-45); wherein the organic electrolyte containing a salt comprising tetraalkyl ammonium cation, and an anion of hexafluoroarsenate (see col. 3, lines 1-14); wherein the organic electrolyte contains a propylene carbonate solvent (see col. 2, lines 27-49). It also discloses that the amount of chlorobenzene in the solvent mixture is from 10 to 70% by volume (see col. 2, lines 49-66).

But it does not disclose expressly the claimed range of specific surface area of the electrode material, the claimed ranges of applied voltage and temperature, the claimed amount of benzene or its chlorine derivative in the organic electrolyte, and that the element is maintained under reduced pressure.

However the missing limitations are well known in the art because Wei discloses that the element is maintained under reduced pressure after applying a voltage to electrolyze water (see col. 5, lines 46-53 and col. 7, lines 17-29), and the Morimoto discloses ranges overlapping with the claimed range, a prima facie case of obviousness exists (See MPEP 2144.05). Besides, the examiner interprets that the prior art teaches an amount of chlorobenzene in a large range in terms of volume, at least some of it will fall into the claimed range in terms of weight.

Therefore, it would have been obvious to combine Morimoto with Wei to obtain the invention as specified in claims 2, 4, 5, 7, 9, 11, 20-21, 23, 24, and 26.

5. Claims 3, 12-15, 17, 19, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto in view of Wei, as applied to claims 2, 4, 5, 7, 9-11, 20-21, 23, 24, 26, and 27 above, and further in view of Tsushima Manabu, JP Patent 10041199 (hereinafter Tsushima).

The combined teaching of Morimoto and Wei discloses substantially the limitations of claims 3, 12-15, 17, 19, and 22, as shown above.

But it does not disclose expressly that the voltage is applied to the element in a dry atmosphere in an open condition .

However, it is well known in the art because Tsushima discloses that the voltage is applied before and after the case is sealed (See Solution). The combined teaching does not expressly disclose that the environmental atmosphere is dry. However Because of the large effect of moisture in the performance of the capacitor, the use of dry atmosphere would have been obvious to ensure better control of the environment, and repeatability of production because fluctuation in humidity would be eliminated.

A person of ordinary skill is motivated to modify Morimoto and Wei with Tsushima because when using Tsushima's open condition in the process of Morimoto the impurities and undesirable moisture from the components of the capacitor element can escape freely resulting in better quality capacitor.

Therefore, it would have been obvious to combine Morimoto and Wei with Tsushima to obtain the invention as specified in claims 3, 12-15, 17, 19, and 22.

6. Claims 8 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto in view of Wei, as applied to claims 2, 4, 5, 7, 9-11, 20-21, 23, 24, 26, and 27, above, and further in view of Grigortchak et al., US Patent 5351164 (hereinafter Grigortchak).

The combined teaching of Morimoto and Wei discloses substantially the limitations of claims 8 and 25, as shown above.

But it does not disclose expressly the two step application of voltage to the capacitor element.

However, it is well known in the art because Grigortchak this feature (See col. 7, line 45- col. 8, line 49 ).

Art Unit: 2812

A person of ordinary skill is motivated to modify Morimoto and Wei with Grigortchak because when using Grigortchak's two step voltage application in the process of Morimoto and Wei an increase in capacitance and energy storage can be obtained (see Grigortchak et al., col. 8, lines 46-49).

Therefore, it would have been obvious to combine Morimoto and Wei with Grigortchak to obtain the invention as specified in claims 8 and 25.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto in view of Wei and Tsushima, as applied to claims 3, 12-15, 17-19, and 22 above, and further in view of Grigortchak.

The combined teaching of Morimoto, Wei, and Tsushima discloses substantially the limitations of claim 16, as shown above.

But it does not disclose expressly the two step application of voltage to the capacitor element.

However, it is well known in the art because Grigortchak this feature (See col. 7, line 45-col. 8, line 49).

A person of ordinary skill is motivated to modify the combined Morimoto, Wei, and Tsushima with Grigortchak because when using Grigortchak's two step voltage application in the process of the combined Morimoto, Wei, and Tsushima an increase in capacitance and energy storage can be obtained (see Grigortchak et al., col. 8, lines 46-49).

Therefore, it would have been obvious to combine Morimoto, Wei, and Tsushima with Grigortchak to obtain the invention as specified in claim 16.

### ***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

Art Unit: 2812

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ha Nguyen whose telephone number is (703)308-2706 . The examiner can normally be reached on Monday-Friday from 8:30AM to 6:00PM, except the first Friday of each bi-week.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached on (703) 308-3325. The fax phone number for this Group is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.



Ha Nguyen

Primary Examiner

08 – 05 – 02